Technical Information

Lactose Gelatin Medium, Modified

Product Code: DM 1987

Application: - Lactose Gelatin Medium, Modified is recommended for detection and presumptive identification of *Clostridium perfringens* from foods.

Composition**

Ingredients	Gms / Litre
Tryptose	15.000
Yeast extract	10.000
Lactose	10.000
Disodium phosphate	5.000
Gelatin	120.000
Phenol red	0.050
Final pH (at 25°C)	7.8±0.1

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Members of the genus *Clostridium* are distributed widely in nature. They are found in soil as well as in fresh water and marine water sediments throughout the world [1]. Clostridial species are one of the main causes of food poisoning / gastro-intestinal illnesses. They are gram-positive, spore-forming rods that occur naturally in soil [2]. Among the family are: *Clostridium botulinum,* which produces one of the most potent toxins in existence; *Clostridium tetani,* causative agent of tetanus; and *Clostridium perfringens ,* commonly found in wound infections and diarrhoea cases. The use of toxins to damage the host is a method used by many bacterial pathogens including *Clostridium.* Lactose Gelatin Medium, Modified is prepared as per the recommendation of AOAC [3] and a slight modification of this medium is recommended by APHA for detection of *Clostridium perfringens* in foods [4].

Tryptose and yeast extract in the medium provide essential growth nutrients. Lactose is the fermentable sugar and phenol red acts as fermentation indicator, which changes from red to yellow due to acid production. Following incubation the medium tube is chilled for 1 hour at 5°C, if medium gels; it should be incubated for an additional 24 hours to examine gelatin liquefaction. The medium is stab inoculated with pure Fluid Thioglycollate Medium (DM1009) culture or isolates from Tryptose Sulphite Cycloserine (TSC) Agar plate. Refer appropriate references for standard procedures [3].

Methodology

Suspend 16 grams of powder media in 100 ml warm distilled water. Shake well & heat to dissolve the medium completely and dispense 10 ml amounts in 15x150 mm screw capped tubes. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Just before use, heat to boiling to remove dissolved oxygen and cool rapidly to incubation temperature.

Quality Control

Physical Appearance
Light yellow to light pink coarse free flowing powder.

Gelling
Semisolid, comparable with 12% Gelatin.
Colour and Clarity of prepared medium
Red coloured, clear to slightly opalescent gel forms in tubes as butts
Reaction: Reaction of 16.0% w/v aqueous solution at 25°C. pH : 7.8±0.1

pH Range 7.70-7.90
Cultural Response/ characteristics
DM 1987: Cultural characteristics observed under anaerobic conditions, after an incubation at 35-37°C for 24-48 hours.

Organism	Inoculum (CFU)	Growth	Lactose fermentation	Gelatin liquefaction
Clostridium perfringens ATCC 12924	50-100	luxuriant	acid and gas production	Positive reaction
Clostridium paraperfringens ATCC 27639	50-100	good	acid production	Positive reaction

Storage and Shelf Life

Dried Media: Store below 30°C in tightly closed container and use before expiry date as mentioned on the label.
Prepared Media: 2-8^{o} in sealable plastic bags for 2-5 days.

Further Reading

1. Murray P. R., Baron J. H., Pfaller M. A., Jorgensen J. H. and Yolken R. H., (Ed.), 2003, Manual of Clinical Microbiology, 8th Ed., American Society for Microbiology, Washington, D.C.

2. Czeczulin J. R., Hanna P. C., Mcclane B. A., 1993, Cloning, nucleotide sequencing, and expression of the Clostridium perfringens enterotoxin gene in Escherichia coli. Infect. Immun. 61: 3429-343 9.

3. FDA Bacteriological Analytical Manual, 2005, 18th Ed., AOAC, Washington, DC.

4. Downes F. P. and Ito K., (Eds.), 2001, Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., APHA, Washington, D.C.

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